

REMARKS

This Amendment is in response to the Office action mailed April 6, 2009. It is believed that no fees are necessary in connection with the present Amendment. However, in the event any fees are due, kindly charge the cost thereof to our Deposit Account No. 13-2855.

Status of the Claims

Claims 1-21 are pending in the present application. Non-elected claims 12-17 and 20 are withdrawn. Claim 9 is amended to delete the phrase “and preferably a negative photoresist”.

Response to Election/Restriction Comment

The Office action indicates “[t]he examiner notes the applicant has elected multiple species.” In an Office action dated December 16, 2008, three allegedly patentably distinct species were identified: “I. Species I – Figs. 2a-e; II. Species II – Figs. 3a-c; and III. Species III – Figs. 4a-c.” In a response dated January 12, 2009, the Applicant elected the species identified as “Species I – Figs. 2a-e.” The Applicant therefore respectfully disagrees with the statement that “the applicant has elected multiple species” and submits that a timely and fully responsive election was made.

Rejections Under 35 U.S.C. § 112

Claims 9 and 21 were rejected under 35 U.S.C. § 112, second paragraph. In response to the rejection, the phrase “and preferably a negative photoresist” has been deleted from claim 9. It is believed this amendment overcomes the rejection.

Rejections Under 35 U.S.C. § 103

Claims 1-9, 11, 18 and 21 were rejected under 35 U.S.C. § 103 as allegedly unpatentable over Gardner, U.S. Patent No. 4,246,076 (Gardner) in view of Nakazawa et al., JP Patent Publication H06-206314 (Nakazawa). The Applicant respectfully traverses these rejections.

The Office action concedes that Gardner does not expressly disclose 'forming a nozzle through the body [of said first material]' as per Claim 1 and Claim 18, but indicates that Nakazawa teaches forming a nozzle extending through a body [of said first material]. It is respectfully submitted that, having regard to the overall purpose of these references relied upon in the Office action, it makes no technical sense to arbitrarily select individual parts of each method in the manner proposed in the Office action. Moreover, it is respectfully submitted that the two methods that are proposed in the Office action to be combined are not technically compatible.

Having regard firstly to Gardner, there is disclosed the deposition and irradiation of photoresist layers 3 and 13 to form posts 11 and 21. This irradiation hardens the photoresist material so that it is self-supporting and may stand upright from substrate 1. Layer 23 is then electroplated onto the substrate, with posts 11 and 21 preventing electroplating where they are present, as shown in Figure 1d of the reference. The posts 11 and 21 are then removed by the use of a suitable stripping solvent in order to form a conical nozzle, with the shapes of these posts defining the shape of the nozzle.

Therefore, it is the intent of Gardner that the posts are utilized as a mold feature for defining the shape of the finished nozzle, which is why the posts are stripped away and dissolved. It is therefore respectfully submitted that to leave these posts in place would contradict the teaching of Gardner, as the posts would no longer perform their function as a mold for the shape of the finished nozzle.

Further, the manner in which the nozzle is formed in Nakazawa is not technically compatible with Gardner. In Nakazawa, a substrate 1 is perforated with pores 5 and a photo-setting resin 7 is charged into the pores 5. The resin is then cured, with the part intended to form

the nozzle being shielded by a mask 8. Gardner also uses a photo-setting polymer, but the polymer is already developed at stage 1a. Therefore, if the nozzle formation method of Nakazawa were utilized at stage 1c of Gardner, as the Office action appears to suggest, a nozzle would not be created, as the photoresist of posts 11 and 21 has already been developed.

As is clear from the above discussion of Gardner, the earlier step of developing the photoresist layers 3 and 13 is essential to the method in order that the posts 11 and 21 are able to stand upright from the substrate before the electroplating step depicted in Figure 1c. Hence, as it is not possible to combine these two photo-setting steps within one method, the combination suggested in the Office action is not technically possible.

For at least these reasons it is believed that claims 1 and 18 are patentable. It is respectfully submitted that claims 2-9 and 19 are patentable at least by virtue of their dependency on an allowable base claim.

Claim 10 was rejected under 35 U.S.C. § 103 as allegedly unpatentable over Gardner in view of Nakazawa, and further in view of Truninger et al., U.S. Patent No. 6,204,182 ("Truninger"). The Office action concedes that Gardner, as modified in the proposed manner according to the teachings of Nakazawa, "may not expressly disclose ... attaching a nozzle plate to a droplet deposition apparatus before the nozzle is formed", but relies on Truninger as teaching attaching a nozzle plate to a droplet deposition apparatus before the nozzles are formed. However, in view of the technical incompatibility of Gardner and Nakazawa for the reasons provided above, it is respectfully submitted that one of ordinary skill in the art would not be led to combine those references in the manner proposed, much less further combine or modify them according to the teachings of Truninger. Claim 10 is also respectfully submitted to be allowable by reason of its dependency on an allowable base claim.

Claim 19 was rejected under 35 U.S.C. § 103 as allegedly unpatentable over Gardner in view of Nakazawa, and further in view of Chung et al., U.S. Patent No. 7,240,433 (“Chung”). The Office action concedes that Gardner, as modified in the proposed manner according to the teachings of Nakazawa, “may not expressly disclose ...depositing a metallic seed layer on the substrate prior to forming the layer of first photoresist material”, but relies on Chung as teaching depositing a metallic seed layer on the substrate prior to forming the layer of a photoresist material. However, in view of the technical incompatibility of Gardner and Nakazawa, as discussed above, it is respectfully submitted that one of ordinary skill in the art would not be led to combine those references in the manner proposed, much less further combine or modify them according to the teachings of Chung. Claim 19 is also respectfully submitted to be allowable by reason of its dependency on independent claim 18, which is believed to be allowable for the reasons indicated above.

Regarding Claim 11, the Office action does not appear to have provided reasons for rejection of the claim. The Applicant, in order to expedite grant of the application respectfully submits that Claim 11 is patentable over the prior art made of record. In particular, the feature that ‘each nozzle extending through polymeric material located within an aperture within the nozzle plate’ is neither taught nor suggested by Gardner and cannot be provided by a combination of Gardner and Nakazawa due to the aforementioned incompatibility of the two disclosed methods. For at least these reasons it is therefore urged that Claim 11 is patentable.

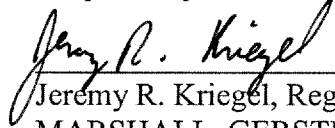
CONCLUSION

The amendment to Claim 9 is believed to overcome the rejections to claims 9 and 21 under 35 U.S.C. § 112, second paragraph. In view of the technical incompatibility of the Gardner and Nakazawa references, it is respectfully submitted that the references are not

properly combinable with one another, or further combinable with either Truninger or Chung, in the manner proposed in the Office action. It is therefore respectfully submitted that claims 1-11, 18, 19 and 21 are allowable. In the event of allowance of these claims, if the prior election/restriction requirement is not withdrawn, Applicant will cancel withdrawn claims 12-17 and 20. The Examiner's reconsideration and favorable action are respectfully solicited. If the Examiner has any questions that might easily be resolved by telephone, the Examiner is invited to contact the Applicant's undersigned representative at (312) 474-6300.

Date: July 2, 2009

Respectfully submitted,



Jeremy R. Krieger, Reg. No. 39,257
MARSHALL, GERSTEIN & BORUN LLP
233 South Wacker Drive, 6300 Sears Tower
Chicago, Illinois 60606
Tel. (312) 474-6300
Fax (312) 474-0448

Attorney for Applicant